WEST

Help | Logout | Interrupt

Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences | Cases

Search Result

Terms	Documents
(((717/105)!.CCLS.))	60

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

Search:

Refine Search

Recall Text | Clear

Search History

DATE: Wednesday, February 19, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
	DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR		
L21	(((717/105)!.CCLS.))	60	L21
L20	((717/104)!.CCLS.)	118	L20
L19	((717/102)!.CCLS.)	28	L19
L18	(((717/5)!.CCLS.))	0	L18
L17	((717/$)!.CCLS.)	4347	L17
L16	L6 and (stag$ near5 tables or temporary near5 tables)	6	L16
L15	(((707/$)!.CCLS.))	14400	L15
L14	(((707/206)!.CCLS.))	327	L14
L13	(((707/200)!.CCLS.))	1164	L13
L12	(((707/104.1)!.CCLS.))	2126	L12
L11	(((707/100)!.CCLS.))	1422	L11
L10	(((707/10)!.CCLS.))	2722	L10
L9	(((707/1)!.CCLS.))	2175	L9
L8	((707/101)!.CCLS.)	1023	L8
L7	L6 and (atag$ near5 tables or temporary near5 tables)	3	L7
L6	L5 and metadata	27	L6
L5	L4 and business and database	80	L5
L4	populat$ and datamart or populat$ and data near2 mart	87	L4
L3	L2 and (stag$ near5 tables or temporary near5 tables)	44	L3
L2	L1 and metadata	1187	L2
L1	business and database or business and data near2 base	35435	L1

END OF SEARCH HISTORY

WEST

Help | Logout | Interrupt

Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences | Cases

Search Results -

Terms	Documents
(((345/741)!.CCLS.))	60

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; IBM Technical Disclosure Bulletins

Search:

Refine Search

Recall Text | Clear

Search History

DATE: Wednesday, February 19, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
	DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR		
L10	(((345/741)!.CCLS.))	60	L10
L9	(((345/700)!.CCLS.))	400	L9
L8	(((345/781)!.CCLS.))	382	L8
L7	((345/764)!.CCLS.)	583	L7
L6	L4 and (datawarehouse or data near2 warehouse or datamart or data near2 mart)	53	L6
L5	L4 and (datawarehouse or datamart)	2	L5
L4	L3 and populat$5	389	L4
L3	L1 and metadata! or meta-data! or (meta! adj2 data!)	2253	L3
L2	L1 and metadata! or meta-data! pr (meta! adj2 data!)	64383	L2
L1	((345/$)!.CCLS.)	50719	L1

END OF SEARCH HISTORY

End of Result Set

Generate Collection | Print

L6: Entry 53 of 53 File: USPT Jan 20, 1998

US-PAT-NO: 5710900
DOCUMENT-IDENTIFIER: US 5710900 A

TITLE: System and method for generating reports from a computer database

DATE-ISSUED: January 20, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Anand; Tejwansh S.	Roswell	GA		
Georgantos; Michael A.	San Diego	CA		
Hu; Yih-Shiuan	Alpharetta	GA		
Knutson; James F.	Roswell	GA		
Lettington; Drew T.	San Diego	CA		
Lindsay; Marshall P.	San Diego	CA		
Meyer; Alan J.	Riverside	CA		
O'Flaherty; Kenneth W.	Del Mar	CA		
Schubert; Richard N.	San Diego	CA		
Selfridge; Peter G.	Watchung	NJ		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
NCR Corporation	Dayton	OH			02

APPL-NO: 08/ 542268 [PALM]
DATE FILED: October 12, 1995

INT-CL: [06] G06 F 3/00

US-CL-ISSUED: 395/339; 395/603
US-CL-CURRENT: 345/764; 345/781, 707/3

FIELD-OF-SEARCH: 395/155, 395/156, 395/157, 395/158, 395/159, 395/160, 395/161, 395/968, 395/339, 395/356, 395/603

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

	PAT-NO	ISSUE DATE	PATENTEE-NAME	US-CL
☐	5088052	February 1992	Spielman et al.	395/158
☐	5404506	April 1995	Fujisawa et al.	395/600
☐	5414838	May 1995	Kolton et al.	395/600
☐	5455945	October 1995	VanderDrift	395/600
☐	5471611	November 1995	McGregor	395/600
☐	5537590	July 1996	Amado	395/600
☐	5544298	August 1996	Kanawy et al.	395/155
☐	5550971	August 1996	Brunner et al.	395/602
☐	5630120	May 1997	Vachey	395/603

OTHER PUBLICATIONS

Dorth and Silberschatz, "Database System Concepts", 2.sup.nd Edition, McGraw-Hill Inc., 1991, pp. 97-98.

ART-UNIT: 245

PRIMARY-EXAMINER: Bayerl; Raymond J.

ASSISTANT-EXAMINER: Katbab; A.

ABSTRACT:

A system and method for generating a report for a user which allows the user to make decisions, without requiring the user to understand or interpret data itself. An application within the system includes a graphical user interface (GUI) which allows the user to select and specify the parameters for the report, display the report, print the report, and save the report. A folder management subsystem allows the user to create a folder object for storing the report within the database, store the report within the folder object, and retrieve the report from the folder object using the GUI. A business information setup subsystem allows the user to create data types and create and constrain relationships between the data types. An analyst definition subsystem allows the user to select an analyst representing a method of analysis to use in generating the report using the GUI. Finally, a viewer module displays the report.

8 Claims, 13 Drawing figures

WEST

Generate Collection Print

L6: Entry 36 of 53 File: USPT Jun 25, 2002

US-PAT-NO: 6411961
DOCUMENT-IDENTIFIER: US 6411961 B1

TITLE: Apparatus for providing a reverse star schema data model

DATE-ISSUED: June 25, 2002

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Chen; Li-Wen	Cupertino	CA		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
MetaEdge Corporation	Sunnyvale	CA			02

APPL-NO: 09/ 306650 [PALM]
DATE FILED: May 6, 1999

PARENT-CASE:
CROSS-REFERENCES TO RELATED APPLICATIONS This application claims priority from the following U.S. Provisional Patent Application, the disclosure of which, including all appendices and all attached documents, is incorporated by reference in its entirety for all purposes: U.S. Provisional Patent Application Ser. No. 60/116,086, Li-Wen Chen entitled, "METHOD AND APPARATUS FOR PERFORMING CUSTOMER DATA ANALYSIS OF A COMPUTER DATABASE USING REVERSE STAR SCHEMA DATA MODEL," filed Jan. 15, 1999. The following commonly-owned co-pending applications, including this one, are being filed concurrently and the others are hereby incorporated by reference in their entirety for all purposes: 1. U.S. patent application Ser. No. 09/306,677, Li-Wen Chen and Juan Oritz entitled, "METHOD FOR PROVIDING A REVERSE STAR SCHEMA DATA MODEL"; 2. U.S. patent application Ser. No. 09/306,650, Li-Wen Chen entitled, "APPARATUS FOR PROVIDING A REVERSE STAR SCHEMA DATA MODEL"; and 3. U.S. patent application Ser. No. 09/306,693, Li-Wen Chen entitled, "SYSTEM FOR PROVIDING A REVERSE STAR SCHEMA DATA MODEL".

INT-CL: [07] G06 F 17/60

US-CL-ISSUED: 707/102; 707/104.1, 705/10
US-CL-CURRENT: 707/102; 705/10, 707/104.1

FIELD-OF-SEARCH: 705/10, 707/3, 707/5, 707/10, 707/103, 707/201, 707/100-104, 717/1

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	4972504	November 1990	Daniel, Jr. et al.	
☐	5036314	July 1991	Barillari et al.	
☐	5168445	December 1992	Kawashima et al.	
☐	5191522	March 1993	Bosco et al.	364/401
☐	5299115	March 1994	Fields et al.	
☐	5615109	March 1997	Eder	
☐	5644723	July 1997	Deaton et al.	
☐	5715450	February 1998	Ambrose et al.	
☐	5721903	February 1998	Anand et al.	395/605
☐	5758355	May 1998	Buchanan	
☐	5787437	July 1998	Potterveld et al.	707/103
☐	5794246	August 1998	Sankaran et al.	
☐	5854746	December 1998	Yamamoto et al.	
☐	5873096	February 1999	Lim et al.	
☐	5893075	April 1999	Plainfield et al.	
☐	6151601	November 2000	Papierniak et al.	707/10
☐	6167405	December 2000	Rosensteel, Jr. et al.	707/102
☐	6212524	April 2001	Weissman et al.	707/101

FOREIGN PATENT DOCUMENTS

FOREIGN-PAT-NO	PUBN-DATE	COUNTRY	US-CL
WO-200057311	February 2001	WO	

OTHER PUBLICATIONS

Gopalkrishnan et al. Star/Snow-flake Schema Driven Object-Relationship Data Warehouse Design and Query Processing Strategy. star schema conversion to object-relational warehouse.*
Brooks. Mark of the data marts. DBMS, Mar. 1997, v10, n3, pp 55(4).*
Krippendorf et al. The translation of star schema into entity relationship diagrams. Database and Expert Systems Applications, Sep. 1997, pp. 390-395.*
Greene. Oracle8 Server Unleashed. Sams, 1998, chapter 30 "Data Warehouses".*
Brachman et al. Mining Business Databases. Communications of the ACM, Nov. 1996, pp. 42-48.*
Firestone. Object-oriented Data Warehousing. Executive Information Systems, Inc. White Paper No. 5, Aug. 7, 1997, downloaded Jul. 25, 2001 http://dkms.com.

ART-UNIT: 2163

PRIMARY-EXAMINER: Hafiz; Tariq R.

ASSISTANT-EXAMINER: Robertson; D.

ABSTRACT:

According to the invention, techniques for organizing information from systems in a data warehousing environment are provided. In a particular embodiment, the invention provides an apparatus for analyzing data in at least data source of an enterprise. The apparatus can include a meta model for an enterprise. The enterprise is typically a business activity, but can also be other loci of human activity. A data schema derived from the meta model can also be part of the apparatus. The apparatus can also include a database organized according to the data schema. The apparatus can translate data from a variety of sources to the data schema. The apparatus can incorporate data into the database and perform a variety of analyses on the data in the database.

10 Claims, 16 Drawing[redacted] ures

WEST

Help | Logout | Interrupt

Main Menu | Search Form | Posting Counts | Show S Numbers | Edit S Numbers | Preferences | Cases

Search Results -

Terms	Documents
L46 and automatic$ same generat$	42

Database: US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; ... World Patents Index ...; IBM Technical Disclosure Bulletins

Search:

Refine Search

Recall Text | Clear

Search History

DATE: Wednesday, February 19, 2003 Printable Copy Create Case

Set Name side by side	Query	Hit Count	Set Name result set
DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L47	L46 and automatic$ same generat$	42	L47
L46	L45 and metadata	88	L46
L45	business near2 database	1093	L45
L44	L42 and metadata	7	L44
L43	L42 and metadata near5 schema	0	L43
L42	business near2 database near3 system	146	L42
L41	generate near2 business near2 database near3 system	0	L41
DB=USPT; PLUR=YES; OP=OR			
L40	5603024.pn.	1	L40
DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR			
L39	5675785.uref.	40	L39
L38	(((707/103r)!.CCLS.))	708	L38
L37	(((707/205)!.CCLS.))	522	L37
L36	(((707/204)!.CCLS.))	589	L36
L35	(((707/203)!.CCLS.))	764	L35

L34	(((707/202)!.CCLS.))	558
L33	(((707/201)!.CCLS.))	733
L32	(((707/103)!.CCLS.))	0
L31	(((707/102)!.CCLS.))	1508
L30	(((707/101)!.CCLS.))	1023
L29	(((707/9)!.CCLS.))	660
L28	(((707/8)!.CCLS.))	606
L27	(((707/7)!.CCLS.))	584
L26	(((707/6)!.CCLS.))	878
L25	(((707/5)!.CCLS.))	1052
L24	(((707/4)!.CCLS.))	1199
L23	(((707/3)!.CCLS.))	2513
L22	((707/2)!.CCLS.)	1296
L21	(((717/105)!.CCLS.))	60
L20	((717/104)!.CCLS.)	118
L19	((717/102)!.CCLS.)	28
L18	(((717/5)!.CCLS.))	0
L17	((717/$)!.CCLS.)	4347
L16	L6 and (stag$ near5 tables or temporary near5 tables)	6
L15	(((707/$)!.CCLS.))	14400
L14	(((707/206)!.CCLS.))	327
L13	(((707/200)!.CCLS.))	1164
L12	(((707/104.1)!.CCLS.))	2126
L11	(((707/100)!.CCLS.))	1422
L10	(((707/10)!.CCLS.))	2722
L9	(((707/1)!.CCLS.))	2175
L8	((707/101)!.CCLS.)	1023
L7	L6 and (atag$ near5 tables or temporary near5 tables)	3
L6	L5 and metadata	27
L5	L4 and business and database	80
L4	populat$ and datamart or populat$ and data near2 mart	87
L3	L2 and (stag$ near5 tables or temporary near5 tables)	44
L2	L1 and metadata	1187
L1	business and database or business and data near2 base	35435

END OF SEARCH HISTORY

WEST

Generate Collection Print

L47: Entry 41 of 42 File: USPT Nov 3, 1998

US-PAT-NO: 5832496
DOCUMENT-IDENTIFIER: US 5832496 A

TITLE: System and method for performing intelligent analysis of a computer database

DATE-ISSUED: November 3, 1998

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Anand; Tejwansh S.	Roswell	GA		
Wikle; Glenn K.	Sante Fe	NM		
Lindsay; Marshall P.	San Diego	CA		
Schubert; Richard N.	San Diego	CA		
Lettington; Drew T.	San Diego	CA		
Ludwig; Jeffrey P.	San Diego	CA		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
NCR Corporation	Dayton	OH			02

APPL-NO: 08/ 742006 [PALM]
DATE FILED: October 31, 1996

PARENT-CASE:
CROSS-REFERENCE TO RELATED APPLICATIONS This patent application is a continuation-in-part of U.S. patent application Ser. No. 08/542,266, filed Oct. 12, 1995 now pending, and entitled "System and Method For Generating Reports From a Computer Database". This patent application is also related to co-pending U.S. patent application Ser. No. 08/742,007, filed Oct. 31, 1996, and entitled "System and Method For Segmenting a Database Based Upon Data Attributes", and Ser. No. 08/742,003, filed Oct. 31, 1996, and entitled "Hypertext Markup Language (HTML) Extensions For Graphical Reporting Over An Internet" now U.S. Pat. No. 5,748,188.

INT-CL: [06] G06 F 17/00

US-CL-ISSUED: 707/102; 345/326, 345/358, 395/50, 395/52
US-CL-CURRENT: 707/102; 345/835, 707/6

FIELD-OF-SEARCH: 707/1-206, 395/50-52, 345/326-358

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected Search ALL

	PAT-NO	ISSUE DATE	PATENTEE-NAME	US-CL
☐	5088052	February 1992	Spielman et al.	395/158
☐	5404506	April 1995	Fujisawa et al.	395/600
☐	5414838	May 1995	Kolton et al.	395/600
☐	5455945	October 1995	VanderDrift	395/600
☐	5471611	November 1995	McGregor	395/600
☐	5537590	July 1996	Amado	395/600
☐	5544290	August 1996	Kanavy et al.	395/155

OTHER PUBLICATIONS

Korth and Silberschatz, "Database System Concepts" 2/E, McGraw-Hill Inc., pp. 97-98, 1986.

ART-UNIT: 271

PRIMARY-EXAMINER: Black; Thomas G.

ASSISTANT-EXAMINER: Jung; David Yiuk

ABSTRACT:

A system and method for performing intelligent analysis and for generating a report for a user which allows the user to make decisions, without requiring the user to understand or interpret data itself. A database computer includes a database containing the data. The data includes a collection of information about an enterprise of the user. A server computer is coupled to the database computer and executes a database management program. A client computer is coupled to the server and executes an application program. The application program allows a user to define predetermined data types, to define relationships between the data types, to define parameters for the report, to define a method of analysis for the report, and to create the report. The report summarizes the data in terms of the data types, the data relationships, and the method of analysis.

17 Claims, 36 Drawing figures

WEST

Generate Collection | Print

L39: Entry 35 of 40 File: USPT Nov 2, 1999

US-PAT-NO: 5978788
DOCUMENT-IDENTIFIER: US 5978788 A

TITLE: System and method for generating multi-representations of a data cube

DATE-ISSUED: November 2, 1999

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Castelli; Vittorio	White Plains	NY		
Jhingran; Anant Deep	Elmsford	NY		
Li, Chung-Sheng	Ossining	NY		
Robinson; John Timothy	Yorktown Heights	NY		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
International Business Machines Corporation	Armonk	NY			02

APPL-NO: 08/ 843290 [PALM]
DATE FILED: April 14, 1997

PARENT-CASE:
CROSS-REFERENCE TO RELATED APPLICATIONS The present invention is related to co-pending patent application Ser. No. 08/726,889, entitled "Adaptive Similarity Searching in Sequence Databases," by Castelli et al., filed Oct. 4, 1996, IBM Docket No. YO996211. This co-pending application and the present invention are commonly assigned to the International Business Machines Corporation, Armonk, N.Y.

INT-CL: [06] G06 F 17/30

US-CL-ISSUED: 707/2; 707/1, 707/3, 707/4, 707/104, 707/102
US-CL-CURRENT: 707/2; 707/1, 707/102, 707/104.1, 707/3, 707/4

FIELD-OF-SEARCH: 707/102, 707/100, 707/200, 707/204, 707/2, 707/1, 707/3, 707/4, 707/104

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	5675785	October 1997	Hail et al.	707/102
☐	5745754	April 1998	Legarde et al.	707/104
☐	5761652	June 1998	Wu et al.	707/2
☐	5799300	August 1998	Agrawal et al.	707/1
☐	5832475	November 1998	Agrawal et al.	707/2

OTHER PUBLICATIONS

DeFazio et al., "Database Extensions for Complex Domains", IEEE Proceedings of the

12th Int'l Conf. on D[redacted] Engineering, pp. 200-202, Feb[redacted], 1996.
J.P. Stamen, "Structuring Databases for Analysis", IEEE Spectrum vol.30 Iss.10, p.55-58, Oct. 1993.
Jim Gray et al., "Data Cube: A Relational Aggregation Operator Generalizing Group-By, Cross-Tab, and Sub-Totals", IEEE, 1996, pp. 152-158.

ART-UNIT: 276

PRIMARY-EXAMINER: Kulik; Paul V.

ASSISTANT-EXAMINER: Robinson; Greta L.

ABSTRACT:

An apparatus and method for approximating the data stored in a databases by generating multiple projections and representations from the database such that the OLAP queries for the original database (such as aggregation and histogram operations) may be applied to the approximated version of the database, which can be much smaller than the original databases. Other aspects optimize a mapping, via a mapping (or dimension) table, of non-numeric or numeric attributes to other numeric attributes such that the error incurred on applying queries to the approximated version of the database is minimized. Still further aspects define boundaries of approximations so that the boundaries are preserved when approximated versions of the databases are generated.

29 Claims, 10 Drawing figures

L39: Entry 35 of 40 File: USPT Nov 2, 1999

US-PAT-NO: 5978788
DOCUMENT-IDENTIFIER: US 5978788 A

TITLE: System and method for generating multi-representations of a data cube

DATE-ISSUED: November 2, 1999

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Castelli; Vittorio	White Plains	NY		
Jhingran; Anant Deep	Elmsford	NY		
Li; Chung-Sheng	Ossining	NY		
Robinson; John Timothy	Yorktown Heights	NY		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
International Business Machines Corporation	Armonk	NY			02

APPL-NO: 08/ 843290 [PALM]
DATE FILED: April 14, 1997

PARENT-CASE:
CROSS-REFERENCE TO RELATED APPLICATIONS The present invention is related to co-pending patent application Ser. No. 08/726,889, entitled "Adaptive Similarity Searching in Sequence Databases," by Castelli et al., filed Oct. 4, 1996, IBM Docket No. YO996211. This co-pending application and the present invention are commonly assigned to the International Business Machines Corporation, Armonk, N.Y.

INT-CL: [06] G06 F 17/30

US-CL-ISSUED: 707/2; 707/1, 707/3, 707/4, 707/104, 707/102
US-CL-CURRENT: 707/2; 707/1, 707/102, 707/104.1, 707/3, 707/4

FIELD-OF-SEARCH: 707/102, 707/100, 707/200, 707/204, 707/2, 707/1, 707/3, 707/4, 707/104

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
☐	5675785	October 1997	Hail et al.	707/102
☐	5745754	April 1998	Legarde et al.	707/104
☐	5761652	June 1998	Wu et al.	707/2
☐	5799300	August 1998	Agrawal et al.	707/1
☐	5832475	November 1998	Agrawal et al.	707/2

OTHER PUBLICATIONS

DeFazio et al., "Database Extensions for Complex Domains", IEEE Proceedings of the

12th Int'l Conf. on Da[redacted]ngineering, pp. 200-202, Feb.[redacted] 1996.
J.P. Stamen, "Structuring Databases for Analysis", IEEE Spectrum vol.30 Iss.10, p.55-58, Oct. 1993.
Jim Gray et al., "Data Cube: A Relational Aggregation Operator Generalizing Group-By, Cross-Tab, and Sub-Totals", IEEE, 1996, pp. 152-158.

ART-UNIT: 276

PRIMARY-EXAMINER: Kulik; Paul V.

ASSISTANT-EXAMINER: Robinson; Greta L.

ABSTRACT:

An apparatus and method for approximating the data stored in a databases by generating multiple projections and representations from the database such that the OLAP queries for the original database (such as aggregation and histogram operations) may be applied to the approximated version of the database, which can be much smaller than the original databases. Other aspects optimize a mapping, via a mapping (or dimension) table, of non-numeric or numeric attributes to other numeric attributes such that the error incurred on applying queries to the approximated version of the database is minimized. Still further aspects define boundaries of approximations so that the boundaries are preserved when approximated versions of the databases are generated.

29 Claims, 10 Drawing figures

WEST

End of Result Set

Generate Collection | Print

L3: Entry 44 of 44 File: USPT Oct 7, 1997

US-PAT-NO: 5675785
DOCUMENT-IDENTIFIER: US 5675785 A

TITLE: Data warehouse which is accessed by a user using a schema of virtual tables

DATE-ISSUED: October 7, 1997

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Hall; Guy Travis	Loomis	CA		
Sturdevant; Mark	San Jose	CA		
Yee; Suzie Cho	Cupertino	CA		
Fong; Yukon	Union City	CA		
Yoshida; Neil	Sunnyvale	CA		
Randazzo; Guy	Rocklin	CA		
Gratiot; Mark	Forest Hill	CA		
Meyer; Marc	Granite Bay	CA		
Fischer; Brian	Mokelumne Hill	CA		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Hewlett-Packard Company	Palo Alto	CA			02

APPL-NO: 08/ 317437 [PALM]
DATE FILED: October 4, 1994

INT-CL: [06] G06 F 17/30

US-CL-ISSUED: 395/613; 395/601, 395/602, 395/604, 395/611
US-CL-CURRENT: 707/102; 707/1, 707/100, 707/2, 707/4

FIELD-OF-SEARCH: 395/600, 395/148, 395/155-161, 395/159, 395/160, 395/601, 395/602, 395/604, 395/611, 395/613

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

	PAT-NO	ISSUE DATE	PATENTEE-NAME	US-CL
☐	4819160	April 1989	Tanka et al.	395/600
☐	5276870	January 1994	Shan et al.	395/600
☐	5418950	May 1995	Li et al.	395/600
☐	5418957	May 1995	Narayan et al.	395/700
☐	5428776	June 1995	Rothfield	395/600
☐	5448726	September 1995	Crimsie et al.	395/600
☐	5448727	September 1995	Annevelink	395/600
☐	5504885	April 1996	Alashqur	395/600
☐	5519859	May 1996	Grace	395/600
☐	5550971	August 1996	Brunner et al.	395/161

OTHER PUBLICATIONS

"Client/Server accounting: accounting system based on client/server architectures increase productivity" by Stewark McKie, DBMS, V6, n2, p. 62(5); Feb., 1993.
"Using SQL:" by Que Corporation, 1993.

ART-UNIT: 237

PRIMARY-EXAMINER: Kulik; Paul V.

ASSISTANT-EXAMINER: Alam; Hosain T.

ABSTRACT:

A database warehouse includes a database having data arranged in data tables, e.g., fact tables and reference tables. A warehouse database hub interface is connected to the database. The warehouse database hub interface presents to a user a schema of the data in the database warehouse. The schema consists of virtual tables. Arrangement of the data in the virtual tables is different than arrangement of data in the fact tables and the reference tables. A user generates queries based on the schema provided by the warehouse database hub interface. In response to a such a query for particular information stored in the database warehouse, the warehouse database hub interface modifies the query to take into account pre-computed values and the arrangement of the data within the database warehouse. Then the warehouse database hub interface queries the database warehouse using the modified query to obtain the particular information from the database warehouse. Finally, the warehouse database hub interface forwards the particular information obtained from the database warehouse to the user.

26 Claims, 5 Drawing figures

L16: Entry 4 of 6 File: USPT Apr 3, 2001

US-PAT-NO: 6212524
DOCUMENT-IDENTIFIER: US 6212524 B1

TITLE: Method and apparatus for creating and populating a datamart

DATE-ISSUED: April 3, 2001

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Weissman; Craig David	Belmont	CA		
Walsh; Gregory Vincent	Cupertino	CA		
Slater, Jr.; Lynn Randolph	Fremont	CA		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
E.piphany, Inc.	San Mateo	CA			02

APPL-NO: 09/ 073752 [PALM]
DATE FILED: May 6, 1998

PARENT-CASE:
CROSS REFERENCES TO RELATED APPLICATIONS This application relates to the following group of applications. Each application in the group relates to, and incorporates by reference, each other application in the group. The invention of each application is assigned to the assignee of this invention. The group of applications includes the following. U.S. patent application Ser. No. 09/385,119, entitled "Method and Apparatus for Creating a Well-Formed Database System Using a Computer," filed Aug. 27, 1999, and having inventors Craig David Weissman, Greg Vincent Walsh and Eliot Leonard Wegbreit. U.S. patent application Ser. No. 09/073,752, entitled "Method and Apparatus for Creating and Populating a Datamart," filed May 6, 1998, and having inventors Craig David Weissman, Greg Vincent Walsh and Lynn Randolph Slater, Jr. U.S. patent application Ser. No. 09/073,733, entitled "Method and Apparatus for Creating Aggregates for Use in a Datamart," filed May 6, 1998, and having inventors Allon Rauer, Gregory Vincent Walsh, John P. McCaskey, Craig David Weissman and Jeremy A. Rassen. U.S. patent application Ser. No. 09/073,753, entitled "Method and Apparatus for Creating a Datamart and for Creating a Query Structure for the Datamart," filed May 6, 1998, and having inventors Jeremy A. Rassen, Emile Litvak, abhi a. shelat, John P. McCaskey and Allon Rauer.

INT-CL: [07] G06 F 17/30

US-CL-ISSUED: 707/101; 707/3
US-CL-CURRENT: 707/101; 707/3

FIELD-OF-SEARCH: 707/1-10, 707/100-104, 707/200-206

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

	PAT-NO	ISSUE DATE	PATENTEE-NAME	US-CL
☐	5386556	January 1995	Hedin et al.	707/4
☐	5550971	August 1996	Brunner et al.	707/3
☐	5659724	August 1997	Borgida et al.	707/3
☐	5675785	October 1997	Hall et al.	707/102
☐	5806060	September 1998	Borgida et al.	707/3
☐	5995958	November 1999	Xu	707/3

OTHER PUBLICATIONS

Kimball, R., "The Data Warehouse Toolkit", (1996) John-Wiley & Sons, Inc., 388 pages (includes CD ROM).
Chawathe, S. et al., "Change Detection in Hierarchically Structured Information", SIGMOD Record, vol. 25, No. 2, Jun. 1996, pp. 493-504.
Chawathe, S. et al., "Meaningful Change Detection in Structured Data",Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 26-37.
Labio, W. et al. "Efficient Snapshot Differential Algorithms for Data Warehousing", Department of Computer Science, Stanford University, (1996), pp. 1-13.
Wiener, J. et al., "A System Prototype for Warehouse View Maintenance", The Workshop on Materialized Views. pp. 26-33, Montreal, Canada, Jun. 1996.
Kawaguchi, A. et al., "Concurrency Control Theory for Deferred Materialized Views", Database Theory-ICDT '97, Proceedings of the 6th International Conference, Delphi, Greece, Jan. 1997, pp. 306-320.
Zhuge, Y. et al., "Consistency Algorithms for Multi-Source Warehouse View Maintenance", Distributed and Parallel Databaes, vol. 6, pp. 7-40 (1998), Kluwer Academic Publishers.
Zhuge, Y. et al., "View Maintenance in a Warehousing Environment", SIGMOD Record, vol. 24, No. 2, Jun. 1995, pp. 316-327.
Widom, J., "Research Problems in Data Warehousing", Proc. of 4th Int'l Conference on Information and Knowledge Management (CIKM), Nov. 1995, 6 pages.
Yang, J. et al., "Maintaining Temporal Views Over Non-Historical Information Sources For Data Warehousing", Advances in Database Technology--EDBT '98 , Proceedings of the 6th International Conference on Extending Database Technology, Valencia, Spain, Mar. 1998, pp. 389-403.
Quass, D., "Maintenance Expressions for Views with Aggregation", Proceedings of the 21st International Conference on Very Large Data Bases, IEEE, Zurich, Switzerland, (Sep. 1995), 9 pages.
Mumick, I. et al., "Maintenance of Data Cubes and Summary Tables in a Warehouse", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 100-111.
Huyn, N., "Multiple-View Self-Maintenance in Data Warehousing Environments", Proceedings of the 23rd International Conference on Very Large Data Bases, IEEE, (1997), pp. 26-35.
Quass, D. et al., "Making Views Self-Maintainable for Data Warehousing", Proceedings of the Fourth International Conference on Parallel and Distributed Information Systems, IEEE, Dec. 1996, pp. 158-169.
Quass, D. et al., "On-Line Warehouse View Maintenance", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 393-404.
Gupta, H., "Selection of Views to Materialize in a Data Warehouse", Database Theory--ICDT '97 , Proceedings of the 6th International Conference, Delphi, Greece, Jan. 1997, pp. 98-112.
Harinarayan, V. et al., "Implementing Data Cubes Efficiently", SIGMOD Record, vol. 25, No. 2, Jun. 1996, pp. 205-216.
Gupta, H. et al., "Index Selection for OLAP", IEEE Paper No. 1063-6382/97, IEEE (1997), pp. 208-219.
Labio, W. et al., "Physical Database Design for Data Warehouses", IEEE Paper No. 1063-6382/97, IEEE (1997), pp. 277-288.
Gupta, A. et al., "Aggregate-Query Processing in Data Warehousing Environments", Proceedings of the 21st VLDB Conference, Zurich, Switzerland, Sep. 1995, 358-369.
O'Neill, P. et al., "Improved Query Performance with Variant Indexes", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 38-49.
McAlpine, G. et al., "Integrated Information Retrieval in a Knowledge Worker Support System", Proc. of the Intl. Conf. on Research and Development In Information Retrieval (SIGIR), Cambridge, MA, Jun. 25-28, 1989, Conf. 12, pp. 48-57.
Tsuda, K. et al., "IconicBrowser: An Iconic Retrieval System for Object-Oriented Databases", Proc. of the IEEE Workshop on Visual Languages, Oct. 4, 1989, pp. 130-137.
"Multiple Selection List Presentation Aids Complex Search", IBM Technical Disclosure Bulletin, vol. 36, No. 10, Oct. 1993, pp. 317-318.

L16: Entry 5 of 6 File: USPT Feb 13, 2001

US-PAT-NO: 6189004
DOCUMENT IDENTIFIER: US 6189004 B1

TITLE: Method and apparatus for creating a datamart and for creating a query structure for the datamart

DATE-ISSUED: February 13, 2001

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Rassen; Jeremy A.	Sunnyvale	CA		
Litvak; Emile	Mountain View	CA		
shelat; abhi a.	Mountain View	CA		
McCaskey; John P.	Mountain View	CA		
Rauer; Allon	Mountain View	CA		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
E. Piphany, Inc.	San Mateo	CA			02

APPL-NO: 09/ 073753 [PALM]
DATE FILED: May 6, 1998

PARENT-CASE:
CROSS REFERENCES TO RELATED APPLICATIONS This application relates to the following group of applications. Each application in the group relates to, and incorporates by reference, each other application in the group. The invention of each application is assigned to the assignee of this invention. The group of applications includes the following. U.S. patent application Ser. No. 09/073,748, entitled "Method and Apparatus for Creating a Well-Formed Database System Using a Computer," filed May 6, 1998, and having inventors Craig David Weissman, Greg Vincent Walsh, and Eliot Leonard Wegbreit. U.S. patent application Ser. No. 09/073,752, entitled "Method and Apparatus for Creating and Populating a Datamart," filed May 6, 1998, and having inventors Craig David Weissman, Greg Vincent Walsh and Lynn Randolph Slater, Jr. U.S. patent application Ser. No. 09/073,733, entitled "Method and Apparatus for Creating Aggregates for Use in a Datamart," filed May 6, 1998, and having inventors Allon Rauer, Gregory Vincent Walsh, John P. McCaskey, Craig David Weissman and Jeremy A. Rassen. U.S. patent application Ser. No. 09/073,753, entitled "Method and Apparatus for Creating a Datamart and for Creating a Query Structure for the Datamart," filed May 6, 1998, and having inventors Jeremy A. Rassen, Emile Litvak, abhi a. shelat, John P. McCaskey and Allon Rauer.

INT-CL: [07] G06 F 17/30

US-CL-ISSUED: 707/3; 707/4, 707/102
US-CL-CURRENT: 707/3; 707/102, 707/4

FIELD-OF-SEARCH: 707/1-10, 707/100-104, 707/200-206

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

	PAT-NO	ISSUE DATE	PATENTEE-NAME	US-CL
☐	5386556	January 1995	Hedin et al.	707/4
☐	5550971	August 1996	Brunner et al.	707/3
☐	5659724	August 1997	Borgida et al.	707/3
☐	5675785	October 1997	Hall et al.	707/102
☐	5806060	September 1998	Borgida et al.	707/3
☐	5995958	November 1999	Xu	707/3

OTHER PUBLICATIONS

Kimball, R., "The Data Warehouse Toolkit", (1996) John-Wiley & Sons, Inc., 388 pages (includes CD ROM).
Chawathe, S. et al., "Change Detection in Hierarchically Structured Information", SIGMOD Record, vol. 25, No. 2, Jun. 1996, pp. 493-504.
Chawathe, S. et al., "Meaningful Change Detection in Structured Data", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 26-37.
Labio, W. et al., "Efficient Snapshot Differential Algorithms for Data Warehousing", Department of Computer Science, Stanford University, (1996), pp. 1-13.
Wiener, J. et al., "A System Prototype for Warehouse View Maintenance", The Workshop on Materialized Views, pp. 26-33, Montreal, Canada, Jun. 1996.
Kawaguchi, A. et al., "Concurrency Control Theory for Deferred Materialized Views", Database Theory--ICDT '97, Proceedings of the 6th International Conference, Delphi, Greece, Jan. 1997, pp. 306-320.
Zhuge, Y. et al., "Consistency Algorithms for Multi-Source Warehouse View Maintenance", Distributed and Parallel Databases, vol. 6, pp. 7-40 (1998), Kluwer Academic Publishers.
Zhuge, Y. et al., "View Maintenance in a Warehousing Environment", SIGMOD Record, vol. 24, No. 2, Jun. 1995, pp. 316-327.
Widom, J., "Research Problems in Data Warehousing", Proc. of 4th Int'l Conference on Information and Knowledge Management (CIKM), Nov. 1995, 6 pages.
Yang, J. et al., "Maintaining Temporal Views Over Non-Historical Information Sources For Data Warehousing", Advances in Database Technology--EDBT '98, Proceedings of the 6th International Conference on Extending Database Technology, Valencia, Spain, Mar. 1998, pp. 389-403.
Quass, D., "Maintenance Expressions for Views with Aggregation", Proceedings of the 21st International Conference on Very Large Data Bases, IEEE, Zurich, Switzerland, (Sep. 1995), 9 pages.
Mumick, I. et al., "Maintenance of Data Cubes and Summary Tables in a Warehouse", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 100-111.
Huyn, N., "Multiple-View Self-Maintenance in Data Warehousing Environments", Proceedings of the 23rd International Conference on Very Large Data Bases, IEEE, (1997), pp. 26-35.
Quass, D. et al., "Making Views Self-Maintainable for Data Warehousing", Proceedings of the Fourth International Conference on Parallel and Distributed Information Systems, IEEE, Dec. 1996, pp. 158-169.
Quass, D. et al., "On-Line Warehouse View Maintenance", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 393-404.
Gupta, H., "Selection of Views to Materialize in a Data Warehouse", Database Theory--ICDT '97, Proceedings of the 6th International Conference, Delphi, Greece, Jan. 1997, pp. 98-112.
Harinarayan, V. et al., "Implementing Data Cubes Efficiently", SIGMOD Record, vol. 25, No. 2, Jun. 1996, pp. 205-216.
Gupta, H. et al., "Index Selection for OLAP", IEEE Paper No. 1063-6382/97, IEEE (1997), pp. 208-219.
Labio, W. et al., "Physical Database Design for Data Warehouses", IEEE Paper No. 1063-6382/97, IEEE (1997), pp. 277-288.
Gupta, A. et al., "Aggregate-Query Processing in Data Warehousing Environments", Proceedings of the 21st VLDB Conference, Zurich, Switzerland, Sep. 1995, pp. 358-369.
O'Neill, P. et al., "Improved Query Performance with Variant Indexes", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 38-49.
McAlpine, G. et al., "Integrated Information Retrieval in a Knowledge Worker Support System", Proc. of the Intl. Conf. on Research and Development In Information Retrieval (SIGIR), Cambridge, MA, Jun. 25-28, 1989, Conf. 12, pp. 48-57.
Tsuda, K. et al., "IconicBrowser: An Iconic Retrieval System for Object-Oriented Databases", Proc. of the IEEE Workshop on Visual Languages, Oct. 4, 1989, pp. 130-137.
"Multiple Selection List Presentation Aids Complex Search", IBM Technical Disclosure

Bulletin, vol. 36, No. Oct. 1993, pp. 317-318.

ART-UNIT: 271

PRIMARY-EXAMINER: Ho; Ruay Lian

ABSTRACT:

A method for automatically defining a query interface for a datamart is described. The datamart includes fact and dimension tables. The method comprises accessing a schema description and a query interface description for the datamart. The schema description specifies a schema, which in turn, defines the relationships between the fact tables and dimension tables of the datamart. The query interface description specifies the fields, related to the schema description, that can be used in a query and the way in which results are to be presented to the user. The fields correspond to columns and rows in the fact tables. The schema description is used to create a first set of commands to create and populate the fact and dimension tables. Additionally, a second set of commands to create the query interface is created. Some commands of the first set of commands are executed causing the creation and population of the tables. Some commands of the second set of commands are executed causing the creation of a user interface. A query is generated using the user interface. The query is sent to the system for processing. The results of the query are presented to the user according the second set of commands.

9 Claims, 43 Drawing figures

End of Result Set

Generate Collection | Print

L16: Entry 6 of 6 File: USPT Dec 12, 2000

US-PAT-NO: 6161103
DOCUMENT-IDENTIFIER: US 6161103 A

TITLE: Method and apparatus for creating aggregates for use in a datamart

DATE-ISSUED: December 12, 2000

INVENTOR-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY
Rauer; Allon	Mountain View	CA		
Walsh; Gregory Vincent	Cupertino	CA		
McCaskey; John P.	Mountain View	CA		
Weissman; Craig David	Belmont	CA		
Rassen; Jeremy A.	Sunnyvale	CA		

ASSIGNEE-INFORMATION: NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Epiphany, Inc.	San Mateo	CA			02

APPL-NO: 09/ 073733 [PALM]
DATE FILED: May 6, 1998

PARENT-CASE:
CROSS REFERENCES TO RELATED APPLICATIONS This application relates to the following group of applications. Each application in the group relates to, and incorporates by reference, each other application in the group. The invention of each application is assigned to the assignee of this invention. The group of applications includes the following. U.S. patent application Ser. No. 09/073,748, entitled "Method and Apparatus for Creating a Well-Formed Database System Using a Computer," filed May 6, 1998, and having inventors Craig David Weissman, Greg Vincent Walsh and Eliot Leonard Wegbreit. U.S. patent application Ser. No. 09/073,752, entitled "Method and Apparatus for Creating and Populating a Datamart," filed May 6, 1998, and having inventors Craig David Weissman, Greg Vincent Walsh and Lynn Randolph Slater, Jr. U.S. patent application Ser. No. 09/073,733, entitled "Method and Apparatus for Creating Aggregates for Use in a Datamart," filed May 6, 1998, and having inventors Allon Rauer, Gregory Vincent Walsh, John P. McCaskey, Craig David Weissman and Jeremy A. Rassen. U.S. patent application Ser. No. 09/073,753, entitled "Method and Apparatus for Creating a Datamart and for Creating a Query Structure for the Datamart," filed May 6, 1998, and having inventors Jeremy A. Rassen, Emile Litvak, abhi a. shelat, John P. McCaskey and Allon Rauer.

INT-CL: [07] G06 F 17/30

US-CL-ISSUED: 707/4; 707/1, 707/3
US-CL-CURRENT: 707/4; 707/1, 707/3

FIELD-OF-SEARCH: 707/1-10, 707/200-208, 707/100-104

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected | Search ALL

	PAT-NO	ISSUE DATE	PATENTEE-NAME	US-CL
☐	5386556	January 1995	Hedin et al.	707/4
☐	5550971	August 1996	Brunner et al.	707/3
☐	5659724	August 1997	Borgida et al.	707/3
☐	5675785	October 1997	Hall et al.	707/102
☐	5806060	September 1998	Borgida et al.	707/3
☐	5995958	November 1999	Xu	707/3

OTHER PUBLICATIONS

McAlpine, G. et al., "Integrated Information Retrieval in a Knowledge Worker Support System", Proc. of the Intl. Conf. on Research and Development in Information Retrieval (SIGIR), Cambridge, MA, Jun. 25-28, 1989, Conf. 12, pp. 48-57.
Tsuda, K. et al., "IconicBrowser: An Iconic Retrieval System for Object-Oriented Databases", Proc. of the IEEE Workshop on Visual Languages, Oct. 4, 1989, pp. 130-137.
"Multiple Selection List Presentation Aids Complex Search", IBM Technical Disclosure Bulletin, vol. 36, No. 10, Oct. 1993, pp. 317-318.
Kimball, R., "The Data Warehouse Toolkit", (1996) John-Wiley & Sons, Inc., 388 pages (includes CD ROM).
Chawathe, S. et al., "Change Detection in Hierarchically Structured Information", SIGMOD Record, vol. 25, No. 2, Jun. 1996, pp. 493-504.
Chawathe, S. et al., "Meaningful Change Detection in Structured Data", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 26-37.
Labio, W. et al., "Efficient Snapshot Differential Algorithms for Data Warehousing", Department of Computer Science, Stanford University, (1996), pp. 1-13.
Wiener, J. et al., "A System Prototype for Warehouse View Maintenance", The Workshop on Materialized Views, pp. 26-33, Montreal, Canada, Jun. 1996.
Kawaguchi, A. et al., "Concurrency Control Theory for Deferred Materialized Views", Database Theory-ICDT '97, Proceedings of the 6th International Conference, Delphi, Greece, Jan. 1997, pp. 306-320.
Zhuge, Y. et al., "Consistency Algorithms for Multi-Source Warehouse View Maintenance", Distributed and Parallel Databases, vol. 6, pp. 7-40 (1998), Kluwer Academic Publishers.
Zhuge, Y. et al., "View Maintenance in a Warehousing Environment", SIGMOD Record, vol. 24, No. 2, Jun. 1995, pp. 316-327.
Wisdom, J. "Research Problems in Data Warehousing", Proc. of 4th Int'l Conference on Information and Knowledge Management (CIKM), Nov. 1995, 6 pages.
Yang, J. et al., "Maintaining Temporal Views Over Non-Historical Information Sources For Data Warehousing", Advances in Database Technology--EDBT '98, Proceedings of the 6th International Conference on Extending Database Technology, Valencia, Spain, Mar. 1998, pp. 389-403.
Quass, D., "Maintenance Expressions for Views with Aggregation", Proceedings of the 21st International Conference on Very Large Data Bases, IEEE, Zurich, Switzerland, (Sep. 1995), 9 pages.
Mumick, I. et al., "Maintenance of Data Cubes and Summary Tables in a Warehouse", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 100-111.
Huyn, N., "Multiple-View Self-Maintenance in Data Warehousing Environments", Proceedings of the 23rd International Conference on Very Large Data Bases, IEEE, (1997), pp. 26-35.
Quass, D. et al., "Making Views Self-Maintainable for Data Warehousing", Proceedings of the Fourth International Conference, on Parallel and Distributes Information Systems, IEEE, Dec. 1996, pp. 158-169.
Gupta, H. "Selection of Views to Materialize in a Data Warehouse", Database Theory--ICDT '97, Proceedings of the 6th International Conference, Delphi, Greece, Jan. 1997, pp. 98-112.
Harinarayan, V. et al., "Implementing Data Cubes Efficiently", SIGMOD Record, vol. 25, No. 2, Jun. 1996, pp. 205-216.
Gupta, H. et al., "Index Selection for OLAP", IEEE Paper No. 1063-6382/97, IEEE (1997), pp. 208-219.
Labio, W. et al., "Physical Database Design for Data Warehouses", IEEE Paper No. 1063-6382/97, IEEE (1997), pp. 277-288.
Gupta, A. et al., "Aggregate-Query Processing in Data Warehousing Environments", Proceedings of the 21st VLDB Conference, Zurich, Switzerland, Sep. 1995, pp. 358-369.
O'Neill, P. et al., "Improved Query Performance with Variant Indexes", Proceedings of the 1997 ACM SIGMOD International Conference, ACM Press, 1997, pp. 38-49.

ART-UNIT: 271

PRIMARY-EXAMINER: Ho; Ruay Lian

ABSTRACT:

A method for automatically defining aggregates for use in a datamart is described. The datamart includes fact and dimension tables. The method comprises accessing a schema description and an aggregates description for the datamart. The schema description specifies a schema, which in turn, defines the relationships between the fact tables and dimension tables of the datamart. The aggregates description specifies the aggregates, which define, from the schema definition, which aggregate tables are to be created from the fact tables and dimension tables in the datamart. The data in the aggregates correspond to the pre-computed results of specific types of queries. In response to a query, the aggregates can be searched to determine an appropriate aggregate to use in response to that query. The schema description is used to create a first set of commands to create and populate the fact and dimension tables. Additionally, a second set of commands to create, populate and access, the aggregates are also created from the aggregates description. Some of the commands of the first set of commands are executed causing the creation and population of the tables. Some of the commands of the second set of commands are executed causing the creation of the aggregate tables. Some of the remaining commands of the second set of commands are executed to populate the aggregate tables from the populated fact and dimension tables.

11 Claims, 43 Drawing figures

ART-UNIT: 271

PRIMARY-EXAMINER: Ho; Ruay Lian

ABSTRACT:

A method of generating a datamart is described. The datamart includes tables having rows and columns. The method comprises accessing a description of a schema. The schema defines the relationships between the tables and columns. The description further defines how data is to be manipulated and used to populate the tables in the datamart. That is, the description defines the semantic meaning of the data. The description is further used to create a set of commands to create the tables. The commands are executed causing the creation of the tables. Importantly, when the semantic meaning is associated with the column and rows, programs for manipulating and propagating data into those columns and rows are automatically defined. Previously, consultants would have to hand code the creation, manipulation, and population programs for a datamart. Thus, the amount of work required to create and populate the datamart is significantly reduced.

21 Claims, 48 Drawing figures